APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,399	10/09/2003	Joon Chang	AUS920030298US1	8359

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IBM CORP (YA)
C/O YEE & ASSOCIATES PC
P.O. BOX 802333
DALLAS, TX 75380

EXAMINER
TRUONG, LOAN

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	10/682,399	CHANG ET AL.
Office Action Summary	Examiner	Art Unit	
	LOAN TRUONG	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 June 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>10 and 21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>10 and 21</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>09 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the amendment filed June 30, 2006 in application

10/682,399.

2.   Examiner acknowledged that claims 1-9, 11-20 and 22-23 are cancel and claims 10 and

21 are amended and presented for examination.

Response to Arguments

3.   Applicant's arguments, filed June 30, 2006, with respect to the rejection(s) of claim(s) 1-

23 under 35 U.S.C. 103(a) as being unpatentable over Kakuta et al. (US 6,243,824) in further

view of Yang et al. (US 2004/0059855) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of

Kakuta et al. (US 6,243,824) in further view of Yang et al. (US 2004/0059855) in further view of

Hrle et al. (US 2004/0260726).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness
      or nonobviousness.

4.   Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakuta

et al. (US 6,243,824) in further view of Yang et al. (US 2004/0059855) in further view of Hrle et

al. (US 2004/0260726).

In regard to claim 10, Kakuta et al. teach a method of handling Write input/output (I/O)

requests during a backup operation on at least one storage device, comprising:

Receiving a Write I/O request for performing a Write I/O operation to a logical volume,

wherein at least a portion of the logical volume resides on the at least one storage device (*write*

operation received by a group of data disks, fig. 2, 6a, 6b, col. 4 lines 35-67 and col. 5 lines 1-

10);

Determining if a backup operation is being performed on the at least one storage device

(*backup-in-process flag is ON, fig. 13, 134*); and

Suspending the Write I/O operation in a logical volume manager until after the backup

operation is completed if it is determined that the backup operation is being performed (*write*

data item is saved in storing disk 9 and transfer to DCU (data control unit) after backup

operation, fig. 4, col. 8 lines 23-31 and lines 46-49), wherein Write I/O operations to at least one

other logical volume are not suspended during the backup operation (*write request issued to data disk 6a only subdata item for disk 6a is written on the write data storing disk 9, fig. 7, 77a, 78b, col. 10 lines 15-20)*;

Kakuta et al. does not teach the method of logging the Write I/O request in a file system log indicating that the Write I/O request is being submitted to the at least one storage device and wherein the Write I/O request is suspended only if the Write I/O request is to a block of data that is subject to the backup operation.

Yang et al. teach the method of the interrupt handler receiving the write request and register the write request on the queue (*paragraph 0029)*.

It would have been obvious to modify the method of Kakuta et al. by adding Yand et al. method of handling write requests. A person of ordinary skill in the art at the time of applicant's invention would have been motivated to make the modification because it would not disrupt the integrity of shared resources (*paragraph 0011)*.

Kakuta et al. and Yang et al. does not teach the method of logging wherein the Write I/O request is suspended only if the Write I/O request is to a block of data that is subject to the backup operation.

Hrle et al. teach the method of DBMS backup without suspending updates and corresponding recovery using separately stored log and data files (*paragraph 0041 lines 7-9)* with one restriction for actions that change external file system's catalog must be temporarily suspended until the backup is finished (*fig. 2, 58, paragraph 0041 lines 17-30)*. Also for database that allow a single database page to span two different storage volumes, these page write I/O's need to be suspended while the backup is in process in

order to prevent partially written pages on the copied volumes (*paragraph 0041 lines 27-30*).

It would have been obvious to modify the method of Kakuta et al. and Yang et al. by adding Hrle et al. method DBMS backup. A person of ordinary skill in the art at the time of applicant's invention would have been motivated to make the modification because it would prevent partially written pages on the copied volumes (*paragraph 0041 lines 27-30*).

In regard to claim 21 Kakuta et al. teach a computer program product in a computer readable medium for handling Write input/output (I/O) requests during a backup operation on at least one storage device, comprising:

First instructions for receiving a Write I/O request for performing a Write I/O operation to a logical volume, wherein at least a portion of the logical volume resides on the at least one storage device (*write operation received by a group of data disks, fig. 2, 6a, 6b, col. 4 lines 35-67 and col. 5 lines 1-10*);

Third instructions for determining if a backup operation is being performed on the at least one storage device (*backup-in-process flag is ON, fig. 13, 134*); and

Fourth instructions for suspending the Write I/O operation in a logical volume mamager until after the backup operation is completed if it is determined that the backup operation is being performed (*write data item is saved in storing disk 9 and transfer to DCU (data control unit) after backup operation, fig. 4, col. 8 lines 23-31 and lines 46-49*), wherein Write I/O operations to at least one other logical volume are not suspended during the backup operation (*write request*

issued to data disk 6a only subdata item for disk 6a is written on the write data storing disk 9,

fig. 7, 77a, 78b, col. 10 lines 15-20);

Kakuta et al. does not teach the program product second instruction of logging the

Write I/O request in a file system log indicating that the Write I/O request is being

submitted to the at least one storage device and wherein the Write I/O request is

suspended only if the Write I/O request is to a block of data that is subject to the backup

operation.

Yang et al. teach the instruction of the interrupt handler receiving the write

request and register the write request on the queue *(paragraph 0029)*.

Refer to claim 10 for motivational statement.

Kakuta et al. and Yang et al. does not teach the program product wherein the

Write I/O request is suspended only if the Write I/O request is to a block of data that is

subject to the backup operation.

Hrle et al. teach the method of DBMS backup without suspending updates and

corresponding recovery using separately stored log and data files *(paragraph 0041 lines*

7-9) with one restriction for actions that change external file system's catalog must be

temporarily suspended until the backup is finished *(fig. 2, 58, paragraph 0041 lines 17-*

30). Also for database that allow a single database page to span two different storage

volumes, these page write I/O's need to be suspended while the backup is in process in

order to prevent partially written pages on the copied volumes *(paragraph 0041 lines 27-*

30).

Refer to claim 10 for motivational statement.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Loan Truong whose telephone number is (571) 272-2572. The examiner can normally be reached on M-F from 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Loan Truong
Patent Examiner
AU 2114

SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER